$$f_1 = nl_1(y_2)$$
$$f_2 = nl_1(y_4) + nl_1(y_4) + nl_2(y_4)$$
$$f_3 = nl_3(y_3) + nl_1(y_4) + nl_2(y_4)$$
$$f_4 = nl_1(y_3)$$